Village Creek Water Reclamation Facility

FORT WORTH

Monitoring and Measurement – EMS Element 13.0

EMS Procedure 13.0	Revision 10	Approval Signature:	Effective Date: Oct. 06, 2014

Purpose: Element 13.0 outlines the systems that the City of Fort Worth has in place to assure compliance with applicable legal and self-imposed requirements, measure the biosolids program performance at Critical Control Points, track its progress toward achieving biosolids program goals and objectives per Element 5.0, and measure the effectiveness of this EMS Element.

Scope: This element covers all Critical Control Points (CCP) in the Biosolids Value Chain as well as documenting the effectiveness of CCP, Operational Controls, Biosolids distribution and marketing, Public Outreach, and overall EMS efforts. This procedure applies to all the organization's biosolids management activities at all CCP throughout the biosolids value chain, including the pretreatment program, VCWRF liquid and solids operations, biosolids beneficial reuse and the future marketing and sale of biosolids for beneficial reuse.

Definitions: ***Biosolids Value Chain*** — Sequence of activities from wastewater pretreatment, discharge and collection through wastewater treatment, solids treatment, stabilization, conditioning, handling, storage, transportation, and final utilization of biosolids that are covered by legal requirements and impact the quality of biosolids and their suitability for the intended use or method of disposal.

Environmental Performance — Measureable results of the environmental management system based on its biosolids management policy and goals and objectives.

Measurement — A systematic method for estimating, testing, or otherwise evaluating key parameters and characteristics of an organization's biosolids management activities to determine compliance with a specific standard, regulatory or other performance requirement, or to measure progress toward its biosolids program goals and objectives.

Monitoring — A systematic process of watching, checking, observing, inspecting, keeping track of, regulating or otherwise controlling key parameters and characteristics of an organization's biosolids management activities to determine compliance with a specific standard, regulatory or other performance requirement, or to measure progress toward its biosolids program goals and objectives.

Total Quality Management Principles — An improvement strategy focusing on customer satisfaction, employee empowerment, continual gathering and use of statistical data, and creating an environment that promotes unity and change..

Responsibility: The Biosolids EMS Manager, Biosolids EMS Coordinator, Water Systems Superintendent, Assistant Water Systems Superintendent (Operations), Pretreatment Manager, and Biosolids Manager (Contractor) are responsible for assuring all EMS aspects that require monitoring and measuring are followed and documented. Each

employee (City and Contractor) working within the biosolids value chain is responsible for the professional quality work that they do.

Procedure:

Regulatory Monitoring: The minimum monitoring requirements for Village Creek Water Reclamation Facility; pretreatment standards, influent flow, effluent and discharge flow, downstream flow, sludge processing and quality, etc. are presented in its Texas Pollution Discharge Elimination System (TPDES) Permit, the Texas Administrative Code (TAC) and Code of Federal Register (CFR) regulations referenced there in (Element 4.0—Legal and Other Requirements).

City: The City monitors and measures biosolids regulatory operations, treatment processes and activities throughout the biosolids value chain. As discussed in Element 4.0—Legal, the City continually monitors changes in the legal regulations governing the biosolids processes and implements any new monitoring requirements when they become effective.

Contractor: The City also requires its contractors to monitor biosolids regulatory operations, processes and activities in addition to those specified by the permit in the contract documents. EMS Master Table in Element 3.0—Critical Control Points, lists the monitoring and measurement activities and frequencies associated with the respective critical control points within the biosolids value chain. These activities are documented as discussed in Element 12.0—Documentation.

Internal Monitoring: The City is committed to the Total Quality Management Principles that the NBP Manual of Good Practice and the EMS program are based on. In order to maintain a working environment that has the ability to adapt, the City trains its employees, as discussed in Element 8.0—Training, to perform their tasks and monitor their work and the processes that they oversees throughout the biosolids value chain. The City also employees Quality Assurance/Quality Control Specialists that monitor both in house and contract laboratory procedures and sampling (Element 7.0—Roles and Responsibilities).

Process Monitoring: As discussed in Element 10.0—Operational Controls, the City and Contractor have established standard operating procedures (SOPs) for each critical control point within the biosolids value chain. These SOPs define the monitoring points and procedures in each process.

City: The City monitors and measures wastewater and biosolids treatment processes, operations and activities throughout the biosolids value chain. The City has established SOPs for monitoring activities. Appendix 13b provides copies of the Daily Process Control Worksheets Village Creek uses for monitoring and measurement. For SOPs regarding biosolids and sludge-only landfill monitoring, see SOPs BLSD 03.001, BSLD05.001, and BSLD 06.001.

Contractor: The City also requires its contractors to monitor biosolids operations, processes and activities in addition to those specified by the permit in the contract documents.

Land Application Monitoring: The City and Contractor monitor and measure biosolids Land Application Site operations and activities. The City conducts biosolids land application site investigations on a regular basis. A **Field Observation Report** (Appendix 13a) is filled out on each site investigation. These reports include information regarding site, weather, truck and haul road conditions. Also, if any land applications Class B Setbacks are used, they are noted on the report. A site close-out investigation is conducted by City staff shortly after the Contractor has moved to another land application site and a **Close-Out Site Visit** form is filled out (Appendix 13a). When investigating odors and an olfactometer is used, an **Odor Monitoring-Field Data Sheet** form is completed. See SOPs BSLD 01.001, BSLD 01.002, BSLD 07.002 for detailed procedures regarding land application monitoring.

Water Department Business Plan: The Biosolids Program continually tracks its progress toward the goals and objectives discussed in Element 5.0. Each department must complete the standard Business Plan Progress Tracking Form quarterly for the City Manager's office to review. This form tracks the department's progress toward the City's strategic goals. As part of this process, each division, team and individual within the department must complete a similar process to support the information conveyed in the department's tracking form.

Goals and Objectives: The biosolids goals and objectives, which support the strategic goals, are presented annually in the EMS Performance Report (Element 15.0). Each year the EMS Management Team (Element 17.0) reviews the progress towards the biosolids goals and objectives. Furthermore, the Biosolids EMS Manager and Biosolids EMS Coordinator shall the track progress of the goals and objectives once per quarter.

Management Review: The EMS Management Team meets for the annual management review and reviews the effectiveness of the biosolids goals and objectives, evaluates EMS performance, and formulates new biosolids goals and objectives prior to the next year's budget sessions.

Audits: In addition to the annual regular management review of the biosolids program, The City has established a system of full and partial internal audits (Element 16.0) which verify the biosolids goals are in place and are being monitored.

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References: *EMS Framework Guidance Manual: http://www.wef.org/Biosolids/*

Code of Good Practice, (NBP): http://www.wef.org/Biosolids/

Manual of Good Practice for Biosolids, (NBP): http://www.wef.org/Biosolids/

VCWRF SOPs: VCWRF Administration Library

Element 3.0 Critical Control Points
Element 4.0 Legal and Other Requirements
Element 5.0 Biosolids Goals and Objectives
Element 7.0 Roles and Responsibilities
Element 8.0 Training
Element 10.0 Operational Control of Critical Control Points
Element 12.0 Documentation and Document Control
Element 15.0 Biosolids Program and EMS Performance Report
Element 16.0 EMS Internal Audit
Element 17.0 Periodic Management Review of Performance

Attachments: Appendix 13a
Appendix 13b

Revision #	***Date***	***Revision Description***
10	10/06/2014	Referenced biosolids SOPs in Process Monitoring and Land Application Monitoring sections
09	08/05/2013	Update references and procedure, added attachments list
08	04/18/2012	Update procedures
07	11/16/2010	Update responsibilities, references, and procedures for goals and objectives
06	07/20/2009	Updated (Appendix 13b) Daily Process Worksheets
05	05/15/2008	Audit (YR2) 2007
04	06/29/2007	Audit (YR1) 2006
03	07/08/2005	Revised Biosolids Goals tracking procedure per Phase II Audit
02	11/29/2004	2004 Issue
01	10/01/2004	Approval Draft
SR	01/30/2004	Issued for Status Review

Appendix 13a

Field Observation Report

Close-Out Site Visit Form

Odor Monitoring-Field Data Sheet

Appendix 13b

Biosolids Percent Solids Data Sheet

Daily Process Control Worksheets